- 1. (Amended) A method for estimating residual noise in [the] a frequency range [(271)] of a desired part [(240)] of a signal, [characterized in that] wherein [the] an amplitude of the signal [(114)] comprising the noise is modified, and the signal [(114)] is combined with the modified signal [(115)] to create a noise estimation measure [(116)].
- 2. (Amended) A method according to claim 1, [characterized in that] wherein the noise estimation measure [(116)] is based on [the] an average power content of the signal [(114)] and the modified signal [(115)] over their frequency spectra [(270, 271, 272)].
- 3. (Amended) A method according to claim 2, [characterized in that] wherein the noise estimation measure [(116)] is based on the average power content of the signal [(114)] and the modified signal [(115)] over one or more common ranges [(270; 271; 272)] of their frequency spectra.
- 4. (Amended) A method according to any one of claims 1 to 3, [characterized in that] wherein the signal [(114)] is attenuated primarily outside [(270, 272) the] a frequency range [(271)] of the desired part [(240)] of the signal.
- 5. (Amended) A method according to [any one of claims] <u>claim</u> 2 [to 4, characterized in that] <u>or 3, wherein</u> the noise estimation measure [(116)] is based on [the] <u>a</u> difference in average power content [(232, 252)] between the signal [(114)] and the modified signal [(115)].
- 6. (Amended) A method according to any one of claims 1 to [5, characterized in that]

 3, wherein the signal [(114)] is a digital signal.
- 7. (Amended) A method according to [any one of claims] <u>claim</u> 4 [to 6, characterized in that], <u>wherein</u> the signal [(114)] is attenuated primarily outside [(270, 272)] the frequency range [(271)] of the desired part [(240)] of the signal [(114) by means of] <u>via</u> a digital filter [(108)].

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- 8. (Amended) A method according to any one of claims 1 to [7, characterized in that] 3, wherein the noise estimation measure [(116)] is quantized in a number of different levels each indicating different levels of noise present.
- 9. (Amended) A method according to any one of claims 1 to [8, characterized in that] 3, wherein the desired part [(240)] of the signal [(114)] represents a selected channel of a digital cellular radio system, and the noise estimation measure [(116)] or a postprocessed version thereof [(117)] is communicated to a link quality control system of said digital cellular radio system as an estimator of current link quality.
- 10. (Amended) A method according to claim 9, [characterized in that] wherein a noise estimation measurement is performed during each of the basic time units [(i.e. time slot or burst)] of a channel of the digital cellular radio system, and the result [(116; 117)] is communicated to a link quality control system of the digital cellular radio system as an estimator of current link quality.
- 11. (Amended) A method according to [any one of] claim 9 [or 10], [characterized in that] wherein several noise estimation measurements are performed, the results are stored, and the results are evaluated, and a derived trend is communicated to a link quality control system of a digital cellular radio system as an estimator of current link quality.
- 12. (Amended) A method according to [any one of claims 9 to 11] <u>claim 9</u>, [characterized in that] <u>wherein</u> the noise estimation measure transferred to the link quality control system is used by the digital cellular radio system to optimize user information channel throughput by adjusting <u>at least one of</u> the data transmission rate, the error correction depth, [and/or the] <u>and a</u> type of modulation.
- 13. (Amended) A method according to [any one of claims] <u>claim</u> 9 [to 12, characterized in that], <u>wherein</u> the noise estimation measure is transferred to a digital demodulator [(321)] and used to adjust [the] <u>a</u> receiver algorithm.

- 14. (Amended) An apparatus for estimating residual noise in [the] <u>a</u> frequency range of a desired part of a signal, [characterized in that it includes] <u>comprising</u> means [(108)] for modifying [the] <u>an</u> amplitude of the signal [(114)] comprising the noise, [and] means [(106)] for combining the signal [(114)] with the modified signal [(115)] to create a noise estimation measure [(116)], and means [(106)] for transferring the measure to a processing unit [(107)].
- 15. (Amended) An apparatus according to claim 14, [characterized in that] wherein the means modified [(106)] for combining the signal [(114)] with the signal [(115)] to create a noise estimation measure [(116)] comprise a power meter for measuring average power content of the signal [(114)] and the modified signal [(115)] over [one or more] at least one of a plurality of common ranges [(2,0; 271; 272)] of their frequency spectra.
- 16. (Amended) An apparatus according to claim 14 or 15, [characterized in that] wherein the means [(108)] for modifying the amplitude of the signal [(114)] comprising the noise include means for attenuating the signal primarily outside [(270, 272)] the frequency range [(271)] of the desired part [(240)] of the signal [(114)].
- 17. (Amended) An apparatus according to [any one of] claim [15 or 16] <u>15</u>, [characterized in that] <u>wherein</u> the means [(106)] for combining the signal [(114)] with the modified signal [(115)] to create a noise estimation measure [(116)] comprise means for computing [the] <u>a</u> difference in average power content [(232, 252)] between the signal [(114)] and the modified signal [(115)].
- 18. (Amended) An apparatus according to [any one of claims] <u>claim</u> 14 [to 17] <u>or 15</u>, [characterized in that it] <u>wherein the apparatus</u> is adapted to handle digital signals.